

instinctively endeavour to satisfy their craving for further phosphorus by eagerly chewing any bone which they can find.

It is a well-known scientific fact that an extreme phosphate deficiency may reduce the breeding efficiency by bringing about a total inhibition of any sexual desire (heat periods). Such an extreme deficiency on dairy pasture is rare and was not reported in any instance.

However, bone-chewing is a safe indication of some degree of phosphatic deficiency, and the last query in the questionnaire was designed to ascertain to what extent a slight deficiency influenced the breeding efficiency.

Table 3.

	Reported Bone-chewing.	Bone-chewing non-existent.
Number of herds .. ..	72*	478
Number of cows .. ..	2,986	20,817
Number of cows calving on or before 31st August	1,903=63.7 per cent.	14,190=68.2 per cent.
Number of slips or abortions ..	179=5.96 per cent.	1,043=5.01 per cent.
Number of empty cows ..	124=4.15 per cent.	821=3.94 per cent.

\*Hand-served and home-reared heifers, 16 herds; hand-served and outside purchases, 13 herds bull running and home-reared heifers, 24 herds; bull running and outside purchases, 19 herds.

Table 3 shows that seventy-two herds which reported bone-chewing gave a decrease of 4.5 per cent. in their breeding-efficiency (number calving normally on or before 31st August) compared with the remainder of the returns which reported no bone-chewing. The figures for "abortions" and "empty cows" are both higher, although only slightly. The differences are probably wholly significant, as the numbers of herds under each of the alternative methods of management and maintenance (as shown in the footnote to Table 3) are proportionally almost identical with those of the complete series (see Table 1, column 3).

The increases of "abortions" and "empties," though slight, are interesting in view of the fact that the United States Department of Agriculture has reported an increase of abortion and sterility on mineral-deficient pasture.

In addition to the seventy-two herds whose owners reported bone-chewing, a further forty-eight farmers stated under "Remarks" that this habit was formerly in evidence in their herds, but had ceased of recent years as a result of regular phosphatic top-dressing.

#### APPARENT EPIDEMIC STERILITY.

As stated earlier, returns from twenty-three herds revealed evidence of the existence of what appeared to be an epidemic form of sterility. These herds totalled 1,289 cows, with 226 or 17.5 per cent. calving on or before 31st August, 72 or 5.6 per cent. "slips or abortions," and 129 or 10 per cent. "empty cows." A discussion of the specific cause of such outbreaks of sterility is outside the scope of the present article. It will suffice to state that it appears to be a definitely infectious disease and not directly related to contagious abortion, since the percentages of abortions (5.6 per cent.) is similar to the normal average (5.1 per cent.).

Herd-management does not appear to affect the incidence of such outbreaks, since approximately equal numbers were "hand served"